The Emergence of Human Granulocytic Ehrlichiosis In New York State

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Background

- Human ehrlichiosis is an acute febrile illness with flu-like symptoms that can potentially be fatal.
- Human ehrlichiosis is caused by Ehrlichia spp. which are gram negative intracellular bacteria that infect white blood cells.
- E. equi is thought to be the etiologic agent of human granulocytic ehrlichiosis.
- Since its recognition in 1986 more than 400 cases have been reported in the U.S. Most of these have been human monocytic ehrlichiosis.
- It is transmitted to man by the deer tick & possibly other ticks.
- Doxycycline has been recommended for treatment of human ehrlichiosis.
- In 1994 & 1995 physicians in Westchester County reported patients that were suspected to have ehrlichiosis. In response to these reports an epidemiologic investigation was initiated by the Westchester County Department of Health and the New York State Department of Health.

Methods

- Case Finding:
  - Letters to Physicians
  - Follow-up of Press Reports
  - Solicitation of Labs doing Ehrlichia Testing
- Case Investigation:
  - Chart review performed
  - Laboratory data reviewed
- Case Definition of HGE in NYS
  - Probable Case:
    - Illness Compatible with Ehrlichiosis and
    - Single Titer > 64 to E. equi or
    - Morulae Present on Peripheral Blood Smear
  - Confirmed Case:
    - Illness compatible with Ehrlichiosis and
    - Four-fold change in titer to E. equi or
    - Positive PCR for E. equi

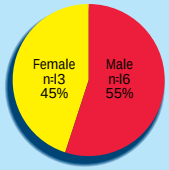
Results

- 68 suspected HGE cases (as of 8/15/95)
  - 23 met the confirmed case definition
  - 6 met the probable case definition

Characteristics of HGE Cases

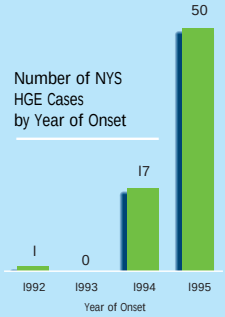
Age:

Range	21 - 90 years
Mean	52 years
Median	52 years



NYS HGE Cases by County of Residence

County	Cases	Endemic Lyme Disease
Westchester	25	Yes
Putnam	2	Yes
Suffolk	1	Yes
Nassau	1	Yes



Clinical Characteristics of HGE Cases

Fever	27/27	(100%)
Headache	22/25	(88%)
Malaise	11/16	(69%)
Arthralgia	13/19	(68%)
Myalgia	11/17	(65%)

Laboratory Values of HGE Cases

WBC x 1000	Range: 0.7 - 7.7 (n : 26)	Mean: 4.2
WBC < 5.0 (x 1000)	16/26 (62%)	
Platelet Count x 1000	Range: 28 - 275 (n : 21)	Mean: 106
Platelets < 150,000	18/21 (86%)	

Other Characteristics

- 13 had elevated liver enzymes.
- 14/24 (58%) reported a tick bite within 21 days prior to onset.
- 13/23 (57%) were hospitalized.
- No deaths reported.
- No permanent sequelae recorded.

Tick Bite Prevention Strategies

- Wear long pants and long-sleeved shirts
- Tuck pants into socks or boots
- Tuck shirt into pants
- Wear light-colored clothing
- Check frequently for ticks
- Use tick repellents on clothing

Conclusions

- Better promotion of current tick bite prevention strategies is needed.
- Development and testing of other tick avoidance strategies should be considered.
- Consider monitoring and controlling infected tick population.
- In areas endemic for Lyme Disease, physicians should have a high index of suspicion for ehrlichiosis in patients with an acute febrile illness and clinical characteristics compatible with ehrlichiosis.
- Tetracycline antibiotics may be a better initial choice for the treatment of Lyme Disease as it is effective for both Lyme Disease and Human Ehrlichiosis.